CLAIMS

WE CLAIM:

1. A method for detecting a spurious timeout in a computer network by a packet transmitting node, the method comprising:

detecting a time-out of an expected acknowledgment of a first sent packet sent by the transmitting node;

sending a second packet which is a shortened version of the first packet;

receiving an acknowledgment, the acknowledgment including a sequence number of an earliest data segment not yet received by a receiving node; and

testing the sequence number of the lowest numbered data segment not yet received to determine if the first packet was received by the receiving node.

2. The method of claim 1 wherein the shortened version is at least one byte shorter than the first packet.

3. The method of claim 1 wherein at least one of the transmitting and receiving node is connected to the computer network via a wireless connection.

4. The method of claim 1 wherein the first and second packet comply with the TCP protocol.

5. The method of claim 1 wherein each data segment in a packet has an associated sequence number.

6. The method of claim 1 wherein the sequence number of the acknowledgment contains the sequence number of the lowest numbered data segment not yet received by the receiving node.

7. The method of claim 1 wherein the testing of the sequence number includes comparing the sequence number received in the acknowledgment to a plurality of sequence numbers of last data segments transmitted in the first and second packets.

8. The method of claim 7 wherein the testing further includes comparing the sequence number received in the acknowledgment with the sequence number of the last data segment of the first packet to determine whether the sequence number received in the acknowledgment is greater.

9. The method of claim 7 wherein a spurious timeout is detected if the sequence number contained in the acknowledgment is greater than the sequence number of the last data segment of the first packet.

10. The method of claim 1 wherein the data segment is an octet.

11. The method of claim 1 wherein rate adaptation is not performed upon detection of a spurious timeout.

12. A computer readable medium holding computer readable code for performing acts for detecting a spurious timeout in a computer network by a packet transmitting node, the method comprising:

detecting a time-out of an expected acknowledgment of a first sent packet sent by the transmitting node;

sending a second packet which is shorter in length than the first sent packet;

receiving an acknowledgment, the acknowledgment including a sequence number of an earliest data segment not yet received by a receiving node; and

testing the sequence number of the lowest numbered data segment not yet received to determine if the first packet was received by the receiving node.

13. The computer readable medium of claim 12 wherein the first and second packet comply with the TCP protocol.

14. The computer readable medium of claim 12 wherein each data segment in a packet has an associated sequence number.

15. The computer readable medium of claim 12 wherein the sequence number of the acknowledgment contains the sequence number of the lowest numbered data segment not yet received by the receiving node.

16. The computer readable medium of claim 12 wherein the testing of the sequence number includes comparing the sequence number received in the acknowledgment to a plurality of sequence numbers of last data segments transmitted in the first and second packets.

17. The computer readable medium of claim 16 wherein the testing further includes comparing the sequence number received in the acknowledgment with the sequence number of the last data segment of the first packet to determine whether the sequence number received in the acknowledgment is greater.

18. The computer readable medium of claim 16 wherein a spurious timeout is detected if the sequence number contained in the acknowledgment is greater than the sequence number of the last data segment of the first packet.

19. The computer readable medium of claim 12 wherein the data segment is an octet.

20. The computer readable medium of claim 12 wherein rate adaptation is not performed upon detection of a spurious timeout.

21. A computer system configured to act as a node complying with a TCP protocol, the computer system comprising:

a processor;

a memory coupled to the processor;

a module coupled to the processor, the module configured to direct transmission of a shortened packet upon detection of a timeout of a prior packet, the module configured to examine a next acknowledgment to determine if a spurious timeout occurred, the acknowledgment including a sequence number of an earliest data segment not yet received by a receiving node, the module configured to test the sequence number of the lowest numbered data segment not yet received to determine if the first packet was received by the receiving node, the module configured to prevent a lower rate of data transmission if the module determines that a spurious timeout occurred.

22. The computer system of claim 21 wherein each data segment in a packet has an associated sequence number.

23. The computer system of claim 21 wherein the sequence number of the acknowledgment contains the sequence number of the lowest numbered data segment not yet received by the receiving node.

24. The computer system of claim 21 wherein the module is configured to compare the sequence number received in the acknowledgment to a plurality of sequence numbers of last data segments transmitted in the prior packet and the shortened packet.

25. The computer system of claim 24 wherein the module is configured to compare the sequence number received in the acknowledgment with the sequence number of the last data segment of the prior packet to determine whether the sequence number received in the acknowledgment is greater.

26. The computer system of claim 24 wherein a spurious timeout is detected if the sequence number contained in the acknowledgment is greater than the sequence number of the last data segment of the prior packet.

27. The computer system of claim 24 wherein the module is contained in a network interface card, the module configured for a wireless computer system.